

ABSTRACT

A method and apparatus for in-line processing a data packet
5 while routing the packet through a router in a system
transmitting data packets between a source and a destination
over a network including the router. The method includes
receiving the data packet and pre-processing layer header
data for the data packet as the data packet is received and
10 prior to transferring any portion of the data packet to
packet memory. The data packet is thereafter stored in the
packet memory. A routing through the router is determined
including a next hop index describing the next connection in
the network. The data packet is retrieved from the packet
15 memory and a new layer header for the data packet is
constructed from the next hop index while the data packet is
being retrieved from memory. The new layer header is
coupled to the data packet prior to transfer from the
router.

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